of a virgin country, is now fully realized by the officials administering most of the European colonies in Africa; this is true especially of the German and British colonies, all of which are well supplied with meteorological stations.

In the Belgian Kongo a well-organized climatological service dates only from the year 1911. This service, which is under the Direction de l'Agriculture, includes 4 stations of the first order, 2 of the second, and 34 of the third. The distribution of stations, in operation or

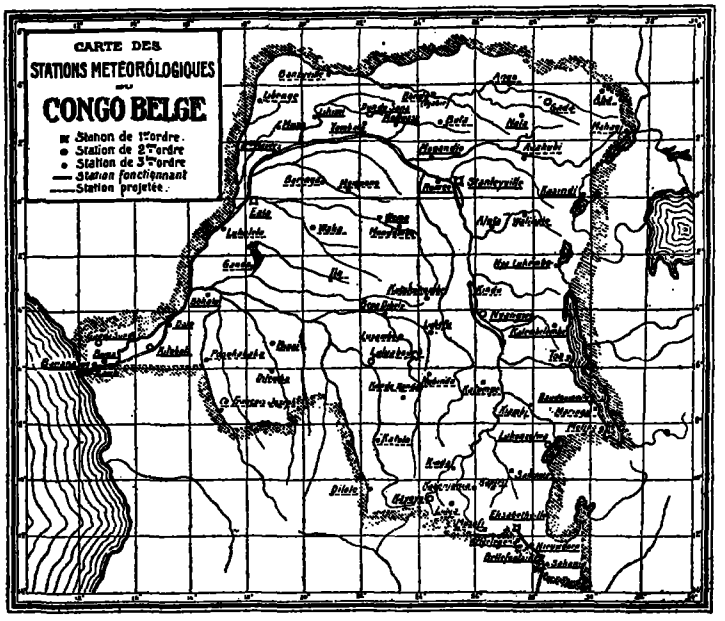

FIG. 2.—Map of meteorological stations in the Belgian Kongo. (From Agric. Bull. of Belgian Kongo.)

projected, is shown by the accompanying chart (fig. 2) from the March, 1913, number of the Bulletin Agricole du Congo Belge. From the same publication we learn that a rainfall chart of the Belgian Kongo will probably be published in four or five years; also that at several places in the colony meteorological observations have been undertaken especially with a view to the requirements of aviation. It is understood that aeroplanes will be extensively used as a means of communication in this part of Africa.

BLUE HILL METEOROLOGICAL OBSERVATORY.

[Extracted from Report Harvard College Astronomical Observatory for the year ending Sept. 30, 1913.]

Pending the formal transfer in March, 1913, of the observatory to Harvard University, all costs of maintenance were defrayed by Mrs. A. Lawrence Rotch. In accordance with the wish of the founder, regular observations have been continued and the record now covers a period of 28 consecutive years. Normals for a 25-year period have been prepared and will soon be ready for publication. The usual work of the observatory was carried on without interruption. Comparative readings at the auxiliary stations, known as the base and valley stations, are now available for a period of nearly 25 years. These data will be utilized in studies of best methods of protecting vegetation from injury by frost.

Upper-air investigation by means of kites was continued until March, the last flight occurring March 7. This was during a thunderstorm and a discharge of lightning melted a mile of wire and damaged the kite reel. Two of the observers were shocked, one severely, but fortunately no permanent injury resulted. For various reasons the use of ballon-sondes or sounding balloons is preferable in exploring the upper air and the kite method is being generally abandoned. Continuance of the kite work is problematical. Blue Hill Observatory [1] was one of the first—if not, indeed, the first—observatories, to fly kites for aerological research. It was also the first to use the sounding balloon, in the United States.

The observatory is now a part of the department of geology, but the close affiliation with the astronomical observatory which has existed for years will be continued and every effort made to utilize data for the benefit of the astronomer, particularly in connection with refraction.

In connection with the erection of a memorial fountain not far below the summit, water was piped from Canton. Through the generosity of Mrs. A. Lawrence Rotch and the cooperation of the Metropolitan Park Commission, an ample supply is available for observatory purposes.

The following changes in the observing force have occurred: Mr. C. F. Brooks resigned as research assistant; Mr. L. A. Wells continued as observer in chief, and Prof. R. De C. Ward had general supervision until the appointment of Mr. A. G. McAdie as professor of meteorology and director of the observatory. The last named assumed charge October 1, 1913.

WIND-ROSE PAPER.

An important conception in local climatology is conveniently expressed by the graphic expedient of the wind-rose. Thus, such indefinite statements as that (at any particular place) "an east wind brings rain," "the coldest wind comes from the northwest," etc., may be replaced advantageously by wind-roses, showing the degree of rainfall, temperature, etc., that is normally associated with each of the principal wind directions.

In the Meteorologische Zeitschrift for March, 1914, Prof. Carl Kassner, of the Royal Prussian Meteorological Institute, describes a device which, by facilitating the process of drawing wind-roses, should encourage the more extensive use of these valuable diagrams in climatology. Prof. Kassner has induced a German firm to prepare paper ruled with lines radiating from a center and with circles concentric around the same center. There are 16 radii; 8 of them heavy lines for the 8 principal wind directions, the others light lines for the intermediate directions. The circles are drawn at intervals of 2 millimeters, the total radius being 8 centimeters. Each of these diagrams is printed on a sheet of paper 22 by 28 centimeters. These sheets come in pads of 50 each. The lines are generally printed in brown ink. They are also, however, obtainable in pale blue; in which case, if, after the wind-rose is drawn, it is copied photographically, the lines of the original diagram will disappear.

RETIREMENT OF DR. ASSMANN.

On April 1, 1914, Geh. Reg.-Rat. Prof. Dr. Richard Assmann retired from the active duties in the execution of which he has been, for a number of years, perhaps the most conspicuous figure in German meteorology. An appreciative sketch of his career is published in the Deutsche Luftfahrer Zeitschrift by the editor, Herr Paul Béjeuhr.

Assmann was born in Magdeburg in 1845, and began his public career as a doctor of medicine. He soon, however, turned his attention to meteorology, and from 1881

[1] The history of the use of kites in aerological research was set forth in the REVIEW for January, 1914, p. 39.—EDITOR.

to 1885 served as director of the weather observatory of the Magdeburgische Zeitschrift. He left this post to become a privatdocent at Halle, and was called from there to Berlin to become a member of the staff of the Royal Prussian Meteorological Institute. One of his most notable achievements at this period was the invention of the aspiration psychrometer.

At Berlin, Assmann soon identified himself with the development of scientific aeronautics, and this has ever since remained his most congenial field of activity. He succeeded in arousing great enthusiasm in behalf of scientific balloon ascents, and instituted the series of such ascents of which the results are recorded in the monumental work, "Wissenschaftliche Luftfahrten," published in three volumes in 1899–1900. Of this work, which may be regarded as a corner stone of the new science of aerology, Assmann was the principal editor. In 1899 he took a lead in the establishment of the first observatory ever created solely for upper-air investigations. Of this institution at first situated at Tegel, but moved in 1904 to Lindenberg, Assmann has been director almost from the beginning, and under his charge it has become an all-important center of aerological investigations, both theoretical and practical. An example of its direct utility to the aeronaut is found in the unique work of the aeronautical storm-warning service, of which the Lindenberg Observatory is the headquarters. When one considers Assmann's indefatigable industry in developing upper-air research, together with the fact that he was one of the discoverers of the isothermal layer, the title "father of aerology," conferred on him by Herr Béjeuhr, hardly seems an excessive compliment.

Assmann's scientific industry has been truly remarkable. He has edited the meteorological journal, "Das Wetter," since its foundation in 1884; has been joint editor with Hergesell of "Beiträge zur Physik der freien Atmosphäre" since its foundation in 1904; and has edited the, to meteorologists, indispensable "Kosmische Physik" volume of "Fortschritte der Physik" since 1887, in addition to the annual report of the Lindenberg Observatory, which is itself a scientific journal of great importance.

We may assume that freedom from administrative duties will enable Dr. Assmann to prosecute even more vigorously than in the past his admirable scientific investigations.

OBITUARY.

Monsieur E. Durand-Gréville, known to all meteorologists as a student of squall phenomena, died in Paris, January 20, 1914, in his seventy-sixth year. A brief notice of his career appears on page 97 of this volume of the REVIEW.

The honorable Francis Albert Rollo Russell died March 30. He was the third son of the first Earl Russell, was born April 11, 1849, and was still a youth when he began his meteorological investigations, which have covered a wide range. He was also interested in problems relating to public health, such as the abatement of coal smoke, etc. In collaboration with the late Douglas Archibald, he contributed to the great "Report of the Krakatoa Commission of the Royal Society," published in 1888, the section relating to optical phenomena. In 1891 he published what is still the most important memoir in the English language on the subject of hail. He was awarded a silver medal by the Smithsonian Institution for his paper "The atmosphere in relation to human life and health," submitted in the Hodgkins Fund prize competition. He was a vice president of the Royal Meteorological Society in 1893–94.